

Serial No. 10/808,428
Attorney Docket No. 11-238

LISTING OF CLAIMS:

The present listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An alarm unit incorporated in an electric system to which a power voltage is supplied, the alarm unit comprising:

a first voltage evaluation circuit, which determines whether or not the power voltage is lower than a first predetermined voltage and outputs a first accident state signal when the power voltage is lower than the first predetermined voltage, the first voltage evaluation circuit being operable only when the power voltage is higher than a second predetermined voltage, the first predetermined voltage being higher than the second predetermined voltage evaluating the power voltage by comparing the power voltage with a reference voltage independent from the power voltage, thereby outputting an accident state signal when the power voltage is lower than a first predetermined voltage;

a second voltage evaluation circuit, which determines whether or not the power voltage is equal to or lower than the second predetermined voltage, and outputs a second accident state signal when the power voltage is equal to or lower than the second predetermined voltage, the second voltage evaluation circuit being operable when the power voltage is between a third predetermined voltage and the second predetermined voltage, the second predetermined voltage being higher than the first predetermined voltage works in a predetermined voltage range in which the first voltage evaluation circuit is insensitive to an operation thereof, evaluating the power voltage by comparing the power voltage with an upper limit of the predetermined voltage range, thereby outputting the accident state signal when the power voltage is lower than the upper limit smaller than the first predetermined voltage; and

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an ~~alarm signal~~ output circuit, ~~outputting which outputs~~ an alarm signal in response to either of the outputted first or second accident state signal signals.

2. (Currently Amended) A sensor unit incorporated in an electric system to which a power voltage is supplied, the sensor unit having a sensor circuit sensing a physical quantity to output a sensor signal responding to the sensed physical quantity, comprising:

a first voltage evaluation circuit, which determines whether or not the power voltage is lower than a first predetermined voltage and outputs a first accident state signal when the power voltage is lower than the first predetermined voltage, the first evaluation circuit being operable only when the first power voltage is higher than a second predetermined voltage, the first predetermined voltage being higher than the second predetermined voltage ~~evaluating the power voltage by comparing the power voltage with a reference voltage independent from the power voltage, thereby outputting an accident state signal when the power voltage is lower than a first predetermined voltage;~~

a second voltage evaluation circuit, which determines whether or not the power voltage is equal to or lower than the second predetermined voltage, and outputs a second accident state signal when the power voltage is equal to or lower than the second predetermined voltage, the second voltage evaluation circuit being operable when the power voltage is between a third predetermined voltage and the second predetermined voltage, the second predetermined voltage being higher than the third predetermined voltage ~~works in a predetermined voltage range in which the first voltage evaluation circuit is insensitive to an operation thereof, evaluating the power voltage by comparing the power voltage with an upper limit of the predetermined voltage range, thereby outputting the accident state signal when the power voltage is lower than the upper limit smaller than the first predetermined voltage; and~~

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an ~~alarm signal~~ output circuit, ~~outputting which outputs~~ an alarm signal in response to either of the outputted first or second accident state signal signals.

3. (Currently Amended) A sensor unit as claimed in claim 2, ~~wherein comprising an the~~ output circuit[:] outputs

~~outputting~~ a sensor output ~~voltage signal~~ depending on a ~~the~~ sensor signal outputted from the sensor circuit when the power voltage is over the first predetermined voltage, and

~~inhibiting the output circuit from outputting the sensor output voltage in response to an output of the accident state signal, so that the alarm signal output circuit provides outputs the~~ alarm signal in place of the sensor output signal in response to an output of either of the first or second accident state signals when the power voltage is equal to or below the first predetermined voltage.

4. (Currently Amended) A sensor unit as claimed in claim 2, wherein a voltage of the alarm signal ~~voltage~~ is set to be higher than a maximum voltage of the sensor output ~~voltage signal~~ ~~from the output circuit~~, the voltage of the alarm signal ~~voltage~~ having a predetermined margin over the maximum voltage.

5. (Currently Amended) A sensor unit as claimed in claim 3, wherein the sensor unit further comprising a clamping circuit for clamping a voltage of the sensor output voltage signal ~~from the output circuit~~ at a voltage level distinguished from a voltage of the alarm signal voltage.

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6.(Currently Amended) A sensor unit as claimed in claim 5, wherein the voltage level distinguished from the voltage of the alarm signal ~~voltage~~ is set to be lower than the voltage of the alarm signal ~~voltage~~ with a predetermined margin.

7. (Currently Amended) A sensor unit as claimed in claim 5, wherein the clamping circuit is configured to freeze an operation thereof if either of the first or second accident ~~state~~ state signals ~~signal~~ is outputted from the first or second voltage evaluation circuit, respectively.

8. (Currently Amended) A sensor unit as claimed in claim 3, wherein the voltage of the alarm signal ~~voltage~~ is a divided voltage produced by dividing an output voltage of a stabilized power supply independent from the sensor unit by ~~ratios of resistances~~ a resistance ratio between a pull-up resistor and a ~~plurality of dividing resistors~~ resistor of in the output circuit, the pull-up resistor being configured to connect a signal line of the output circuit and the stabilized power supply.

9.(Currently Amended) A sensor unit as claimed in claim 7, wherein the voltage of the alarm signal ~~voltage~~ is a divided voltage produced by dividing an output voltage of a stabilized power supply independent from the sensor unit by ~~ratios of resistances~~ a resistance ratio between a pull-up resistor and a ~~plurality of dividing resistors~~ resistor of in the output circuit, the pull-up resistor being configured to connect a signal line of the output circuit and the stabilized power supply.

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10. (New) The alarm unit as claimed in claim 1, wherein the first voltage evaluation circuit

compares a monitoring voltage that depends on the power voltage with a reference voltage that is independent of the power voltage, and

judges that the power voltage is lower than the first predetermined voltage when the monitoring voltage is lower than the reference voltage.

11. (New) The sensor unit as claimed in claim 2, wherein the first voltage evaluation circuit

compares a monitoring voltage that depends on the power voltage with a reference voltage independent from the power voltage, and

judges that the power voltage is lower than the first predetermined voltage when the monitoring voltage is lower than the reference voltage.

12. (New) The sensor unit as claimed in claim 2, wherein the third predetermined voltage is a ground voltage.

13. (New) A sensor unit as claimed in claim 2, wherein the output circuit
outputs a sensor output signal depending on the sensor signal outputted from the sensor circuit when the power voltage is over the first predetermined voltage, and
outputs the alarm signal in place of the sensor output signal in response to an output of either of the first and second accident state signals when the power voltage is below the first predetermined voltage and is between the third predetermined voltage and the second predetermined voltage.